

what dreadful places the Darwinian path leads. He applies the pragmatist test: What is this hypothesis good for? and he finds that it is not good either for a man's metaphysics or for his morals. This mode of testing scientific conclusions seems a dangerous one. It brings the passions and noise of the market-place into the dispassionate and quiet walks of science. In many pages the author seems to us to be caricaturing Darwinism, and while his work may be of use in showing the danger of hastily transferring biological results into the ethical and social realm, it seems to us to be full of exaggerations and fireworks. Some well-meaning writers have done ill-service by hastily transferring to the human social realm the imperfect results of a rapidly changing biological ætiology which would be better pleased to be left to mind its own business, but it seems to us even more deplorable that an author of Max Steiner's ability should prejudice judgment on Darwinism by showing in lurid colours what *might* be the social, ethical and æsthetical consequences of certain biological doctrines or misinterpretations of these.

J. A. T.

THE STUDY OF TROPICAL DISEASES.

The Practical Study of Malaria and other Blood Parasites. By Dr. J. W. W. Stephens and S. R. Christophers. Pp. iv+414+xiv. Third Edition. (Liverpool: The University Press; London: Williams and Norgate, 1908.) Price 12s. 6d. net.

THE issue of three editions of this book in the space of five years is eloquent testimony to its usefulness, and we can well understand that, to the worker in the tropics, far away, perhaps, from libraries, laboratories, and fellow-workers, it is invaluable. The authors are both well known for their researches on tropical diseases, and Dr. Stephens is lecturer in the Liverpool School of Tropical Medicine, so that they know the needs of the research student. In the present edition various alterations have been made—trypanosomes, the *Hæmamoebidæ* and spirochætes are described at greater length than before, the chapter on ticks has been re-written and extended, the consideration of mosquitoes has been confined to the *Anophelinæ*, and the chapter dealing with *Filariæ* has been omitted.

The last-named omission is, in our opinion, a mistake, for this section added much to the completeness of the volume, without enlarging it to too great an extent. The book is profusely illustrated with rough but characteristic sketches, more finished drawings, and coloured plates, which enhance its value.

The first two chapters deal with the normal and pathological cells of the blood, their enumeration, and staining. In the drawing of the megaloblast (Fig. 1, p. 2), the nucleus is depicted too deeply stained, and it is hardly correct to describe the nucleus of the large mononuclear leucocyte as irregular and much indented. The caution to use pure methyl alcohol in making up the Leishman stain might have been emphasised. Chapters iii., iv., and v., on malaria, are concise and to the point, and embody a number of useful practical "tips." We miss, however,

any reference to the term "subtertian," now commonly used to designate the malignant tertian fever. Chapters vi. to xix. deal with mosquitoes—their general structure, development, life-history, habits, and classification, methods of examination, breeding, capture, and identification. As regards killing, no mention is made of the ordinary entomologist's killing bottle, which can often be obtained or extemporised, and when at hand is one of the best methods available. As regards classification, that of Theobald is adopted, which is based largely on the characters of the scales on the wings and body. The authors are probably wise in confining their description of species almost to the *Anophelinæ*; these are the important ones from the point of view of medical research, and to have included much more would have occupied far more space than could be allotted. Chapter xxi. is a useful one, indicating how to make a malarial survey of a district. In chapter xxii. the clinical study of malaria is detailed, and contains much useful information. The *Hæmamoebæ*, *hæmogregarines* and *Piroplasmata* are next considered, and the occurrence and main characters of the important species described. We note that it is stated that Miyajima cultivated a trypanosome in blood bouillon from *Piroplasma bigeminum*, but this is an error; the species giving rise to these flagellated developmental forms was probably *P. parvum*. The consideration of ticks naturally follows that of the *Piroplasmata*, and a very full description of these arthropods is given; but in the classification and description of species more mention of synonyms would have been helpful. The trypanosomes are next considered in great detail, and a chapter on biting flies, *e.g.* *Stomoxys*, *Tabanus*, and *Glossina*, concludes the descriptive matter.

The book also includes chapters on blackwater and yellow fevers, and an appendix containing formulæ for stains and other solutions, preparations of tissues, weights and measures, &c.

We congratulate the authors on their work, which will be indispensable in all laboratories.

HUMAN PHYSIOLOGY.

Physiologie des Menschen. Von Dr. L. Luciani. Ins Deutsche übertragen und bearbeitet von Prof. Dr. S. Baglioni und Dr. Hans Winterstein. Sechste bis zehnte Lieferungen. (Jena: Gustav Fischer, 1907.)

THE issue of the sixth to tenth parts of Luciani's text-book of physiology nearly brings the work to a conclusion. Within the limits of a review it is only possible to mention the most salient features of the book.

Part vi. deals first with the excretory functions of the intestines. The description is noteworthy, not only on account of its excellence and completeness, but also because it indicates more fully than is usual in text-books of physiology the important bearing of the facts on practical medicine.

In the next chapter the chief chemical constituents of the urine are enumerated and described. In view of the large number of works entirely devoted to

this subject, the author has wisely limited his account to the more important facts. It is somewhat unfortunate that Hopkins's method for the estimation of uric acid has been omitted, since it is much simpler than that of Salkowski and Ludwig, which has been selected by the author. A considerable amount of space is devoted to the subject of the toxicity of the urine under normal and pathological conditions. A comprehensive account is next given of the various theories dealing with the secretion of the urine. The description of the functions of the urinary system concludes with a very full and lucid review of the functions of the bladder.

The physiology of the skin and its glands forms the subject of the next chapter. The final pages of the section are devoted to a very thorough and interesting description of the histological and chemical changes involved in the secretion of milk.

Part vii. deals first with the general physiology of muscle. An exceptionally complete account is given of the methods employed in studying muscular work. The mechanics of the special organs of motion are also discussed in greater detail than is usual in text-books of physiology. A description of the mechanism of voice production forms a natural conclusion to this chapter.

The following chapter gives a clear and detailed account of the general physiology of the nervous system, and includes several hitherto unpublished figures from Golgi. An excellent critical review of the neurone theory of the constitution of the nervous system forms a prominent feature of this section. The recent work of Verworn and his pupils on the hitherto somewhat obscure subject of the metabolism of the nerve centres is fully described. The recent interesting experiments of Baglioni and Winterstein on the isolated cord of the frog are also included in this chapter. The physiology of the spinal cord and its nerves forms the subject of the next chapter. A noteworthy feature is the very lucid and thorough description of the segmental distribution of the spinal nerves. Baglioni and Winterstein—the translators of the work—have added a very useful summary of the physiology of the sympathetic nervous system.

The physiology of the bulb and associated cranial nerves is next described in detail. In the following chapter, a very valuable and critical account is given of the physiology of the cerebellum, largely based upon the author's own work.

The two final chapters deal with the physiology of the mid-brain, basal ganglia, and cerebrum. They embrace a very comprehensive survey of the historical development of our knowledge up to the most recent date. A masterly description is given of the localisation of the sensori-motor, sensory, and association centres in the cerebral cortex of man and the higher mammals.

It would be difficult to speak too highly of the value of this text-book. Its preparation must have entailed an almost incalculable amount of labour, combining as it does that wealth of detail usually only found in text-books written by numerous contributors with the uniformity of treatment resulting from the fact that it

is essentially the work of one author. The account of the nervous system especially reveals an exact and intimate knowledge of the literature. The work of English physiologists in this field receives fuller treatment than in most foreign text-books.

The translators of the work—Baglioni and Winterstein—have made many valuable additions with the object of bringing the book fully up to date. The book is remarkably free from typographical errors. The following errata, however, should be noted:—on p. 370 of vol. ii. "phenol" is used instead of "indol," and on p. 600 of vol. iii., in the description of Flechsig's scheme of the projection and association centres, "parietal" is used instead of "frontal." In one instance also the word "verleiten" is used instead of "verleihen."

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TECHNICAL CHEMISTRY.

Leather Industries Laboratory Book of Analytical and Experimental Methods. By Prof. H. R. Procter. Second edition, revised and enlarged. Pp. xx+460. (London: E. and F. N. Spon, Ltd.; New York: Spon and Chamberlain, 1908.) Price 18s. net.

AS the first edition of this work has been out of print and unobtainable for more than two years, the appearance of a second and revised edition is extremely welcome to those who are in any way connected with the leather and allied trades.

The second edition of this work is similar in style and external appearance to the first edition, but has been considerably enlarged and in parts completely re-written. Prof. Procter has added new methods of analysis for the control of the tan-yard, in some cases as supplementary to the old, but in others has substituted the newer methods as being more accurate; and as the author states in the preface that "they have been carefully tested in my own laboratory," the dictum of such an authority will suffice to satisfy all chemists working in this branch. The work is not meant to teach either chemical theory or the principles of leather manufacture, but contains in handy form practically all the various common analytical methods likely to be required either by the chemist in the tannery or by those doing work in connection with the chemistry of the leather and allied trades. It is not intended to take the place of ordinary chemical text-books, but to supplement them; and throughout the volume the fullest references are given to original papers and methods.

The work deals in various chapters with general methods of analysis, technical water analysis, depilants, the estimation of ammonia and hide substance, the analysis of materials used in puering, bateing, liming, &c. Chapter viii., dealing with the chemistry of the tannins and their derivatives, has been considerably enlarged and brought up to date. In this the author has summarised all the work which has been done on this subject up to the present time, and gives copious references. The chapters dealing with the analysis of tanning materials and the official methods of tannin estimation have been completely re-written, and full details of the new international